

Recombinant Rat FAK2 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP52421

Size: 10ug, 100ug

Protein Name: Protein-tyrosine kinase 2-beta (EC 2.7.10.2) (Calcium-dependent tyrosine kinase) (CADTK) (Calcium-regulated non-receptor proline-rich tyrosine kinase) (Cell adhesion kinase beta) (CAK-beta) (CAKB) (Focal adhesion kinase 2) (FADK 2) (Proline-rich tyrosine kinase 2)

Synonym: Ptk2b, Fak2, Pyk2

UniProt ID: P70600

UniProt Link: www.uniprot.org/uniprotkb/P70600/entry

Species Source: Rat

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 1009 AA

Molecular Weight: 116 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MSGVSEPLSRVKVGTLRPPEGPPPEPMVVVPVDVEKEDVRILKVCFYNSNSFNPNGKNFKLVKCTVQTEI
QEIITSILLSGRIGPNIQLAECYGLRLKHKMSDEIHWLHPQMTVGEVQDKYECLHVEAEWRYDLQIRY
LPEDFMESLKEDRTTLLFYQQLRNDYMQRYASKVSEGMALQLGCLELRRFFKDMPHNALDKKSNF
ELLEKEVGLDLFFPKQMENLKPQFRKMIQQTFFQYASLREEECVMKFFNTLAGFANIDQETYRCE
LIQGWNITVDLVIGPKGIRQLTSQDTKPTCLAEFKQIRSIRCLPLEETQAVLQLGIEGAPQSLSIKTSSLA
EAENMADLIDGYCRLQGEHKGSLIIHAKKDGEKRNSLPQIPTLNLESRRSHLSESCSIESDIYAEIPDE
TLRRPGGPQYGVAREDVVLNRLGEGFFGEVYEGVYTNHKGEKINVAVKTCCKDCTLDNKEKFMSE
AVIMKNLDHPHIVKLIGIEEPTWIVMELYPYGELGHYLERKNKSLKVPTLVLYALQICKAMAYLESIN
CVHRDIAVRNILVASPECVKLGDFGLSRYIEDEDYKASVTRLPIKWMSPESINFRRFTTASDVWMFA
VCMWEILSFGKQPPFWLENKDVIGVLEKGDRLPKPELCPVLYTLMTRCWDYDPSDRPRFTELVCS
LSDIYQMERDIAIEQERNARYRPPKILEPTAFQEPPPKPSRPKYKHPPQTNLLAPKLQFQVPEGLCAS
SPTLTSPMEYPSPVNSLHTPPLHRHNVFKRHSREEDFIRPSSREEAQQQLWEAEKIKMRQVLDLDRQQ
KQMVEDSQWLRREERCLDPMVYMNDKSPLTPEKEAGYTEFTGPPQKPPRLGAQSIQPTANLDRTD
DLVYHNVMTLVEAVLELKNKLSQLPPEEYVVVVKNVGLNLRKLIGSVDDLLPSLPASSRTEIEGTQKLL
NKDLAELINKMRLAQQNAVTSLSSEDCKRQMLTASHTLAVDAKNLLDAVDQAKVVANLAHPPAE

3. Buffer Composition

Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

4. Storage Conditions

Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

5. Product Description

This product is recombinant Protein-tyrosine kinase 2-beta (EC 2.7.10.2) (Calcium-dependent tyrosine kinase) (CADTK) (Calcium-regulated non-receptor proline-rich tyrosine kinase) (Cell adhesion kinase beta) (CAK-beta) (CAKB) (Focal adhesion kinase 2) (FADK 2) (Proline-rich tyrosine kinase 2) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

Protein Function: Non-receptor protein-tyrosine kinase that regulates reorganization of the actin cytoskeleton, cell polarization, cell migration, adhesion, spreading and bone remodeling. Plays a role in the regulation of the humoral immune response, and is required for normal levels of marginal B-cells in the spleen and normal migration of splenic B-cells. Required for normal macrophage polarization and migration towards sites of inflammation. Regulates cytoskeleton rearrangement and cell spreading in T-cells, and contributes to the regulation of T-cell responses. Promotes osteoclastic bone resorption; this requires both PTK2B/PYK2 and SRC. May inhibit differentiation and activity of osteoprogenitor cells. Functions in signaling downstream of integrin and collagen receptors, immune receptors, G protein-coupled receptors (GPCR), cytokine, chemokine and growth factor receptors, and mediates responses to cellular stress. Forms multisubunit signaling complexes with SRC and SRC family members upon activation; this leads to the phosphorylation of additional tyrosine residues, creating binding sites for scaffold proteins, effectors and substrates. Regulates numerous signaling pathways. Promotes activation of phosphatidylinositol 3-kinase and of the AKT1 signaling cascade. Promotes activation of NOS3. Regulates production of the cellular messenger cGMP. Promotes activation of the MAP kinase signaling cascade, including activation of MAPK1/ERK2, MAPK3/ERK1 and MAPK8/JNK1. Promotes activation of Rho family GTPases, such as RHOA and RAC1. Recruits the ubiquitin ligase MDM2 to P53/TP53 in the nucleus, and thereby regulates P53/TP53 activity, P53/TP53 ubiquitination and proteasomal degradation. Acts as a scaffold, binding to both PDPK1 and SRC, thereby allowing SRC to phosphorylate PDPK1 at 'Tyr-9', 'Tyr-373', and 'Tyr-376' (By similarity). Promotes phosphorylation of NMDA receptors by SRC family members, and thereby contributes to the regulation of NMDA receptor ion channel activity and intracellular Ca(2+) levels. May also regulate potassium ion transport by phosphorylation of potassium channel subunits. Phosphorylates SRC; this increases SRC kinase activity. Phosphorylates ASAP1, NPHP1, KCNA2 and SHC1. Promotes phosphorylation of ASAP2, RHOU and PXN; this requires both SRC and PTK2/PYK2 (By similarity).

Subcellular Localization: Cytoplasm . Cytoplasm, perinuclear region . Cell membrane ; Peripheral membrane protein ; Cytoplasmic side . Cell projection, lamellipodium . Cytoplasm, cell cortex . Nucleus . Note=Colocalizes with integrins at the cell periphery. Interaction with NPHP1 induces the membrane-association of the kinase. Colocalizes with PXN at the microtubule-organizing center. The

tyrosine phosphorylated form is detected at cell-cell contacts (By similarity).; [Isoform 2]: Cell junction, focal adhesion. Note=Localizes to focal adhesions, but not isoform 1 and isoform 3.

6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer-composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.